



Microsoft®

System Center

Summer Night



Hyper-V en Virtual Machine Manager 2012

Hans Vredevoort

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Microsoft®
System Center

User Group **Netherlands**

Wie is Hans Vredevoort?

❖ Consultant bij inovativ

- ❖ Hyper-V, System Center
- ❖ Cluster, Server, Storage
- ❖ Microsoft Private Cloud

❖ Certificaties/Awards

- ❖ 3x Cluster Microsoft MVP
- ❖ MCP, MCSE, CNE, ASE, VCP

❖ Blogs & presentaties

- ❖ The Experts Conference 2011 in Frankfurt (17-19 oktober 2011)
- ❖ Experts Live in Etten-Leur (22 november 2011)
- ❖ Hyper-V.nu (medio 19 januari 2012)

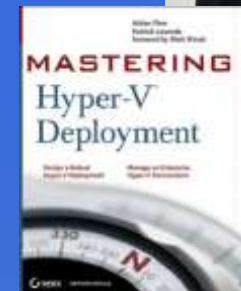
❖ Boeken

- ❖ Mastering Hyper-V Deployment (Aidan Finn)
- ❖ Building the Microsoft Private Cloud Foundation

❖ Contact

- ❖ hans.vredevoort@inovativ.nl | hans@hyper-v.nu | [@hvredevoort](https://twitter.com/hvredevoort)

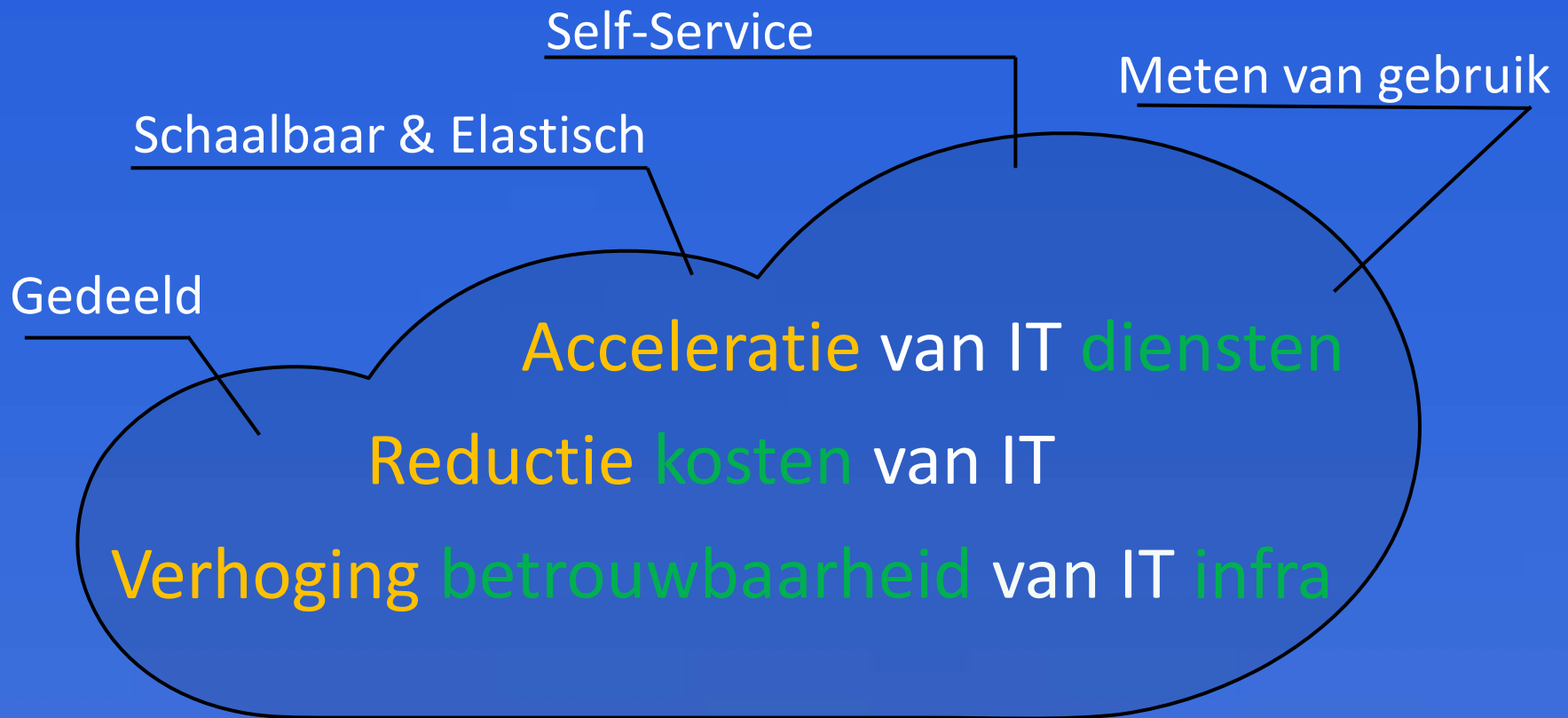
inovativ 



Agenda

- ❖ **Ontwikkeling Private Cloud Infrastructure**
- ❖ **Wat is nieuw in VMM 2012?**
- ❖ **Deployment: setup & upgrade VMM 2012**
- ❖ **High Available VMM Server**
- ❖ **Storage Integratie in VMM 2012**

Cloud Computing IT as a Service



Ontwikkeling Private Cloud Infrastructure



Logisch ingedeeld & gestandaardiseerd



Diversiteit aan infrastructuur

Ontwikkeling Private Cloud Infrastructure



Logisch ingedeeld & gestandaardiseerd

Gedelegeerde clouds

Diversiteit aan infrastructuur

Ontwikkeling Private Cloud Infrastructure

Applications

APP 1	APP 2	APP 3
OS 1	OS 2	OS 3
OS 1	OS 2	OS 3

Scheiding applicatie
& OS configuratie

Gedelegeerde clouds

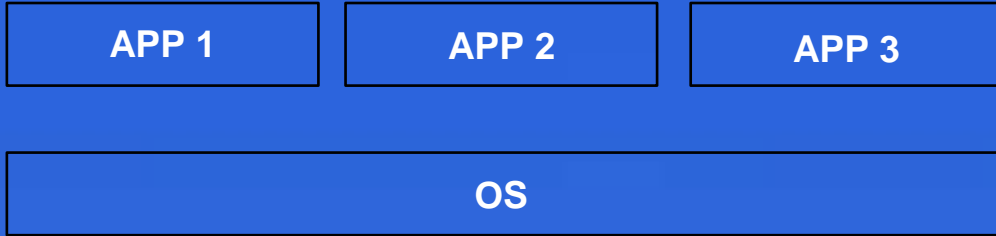
Logisch ingedeeld &
gestandaardiseerd

Diversiteit aan
infrastructuur



Ontwikkeling Private Cloud Infrastructure

SLA Management Self Service "Administration"



Business in Control

Scheiding Applicatie & OS Configuratie

Gedelegeerde clouds

Logisch ingedeeld & gestandaardiseerd

Diversiteit aan infrastructuur

Private Cloud Setup

Configureren van de fabric
(servers, network, storage)

Creëren van een cloud op de fabric

Delegatie van beheer
van cloud naar Self Service User

Self Service User creëert VMs en Services
in de cloud

Private Clouds

Cloud Consumer View

Capacity
Capabilities
Libraries

Hosts
Clusters
Library Servers

Logical Networks
Load Balancers

IP Address Pools
MAC Address Pools

Storage Classifications
Storage Capacity

Storage Pools
Storage Providers
Storage Arrays

Wat is er allemaal nieuw in SCVMM 2012?

Deployment

Infrastructure Enhancements

Setup & Upgrade

HA VMM Server

Custom properties

Powershell

Fabric

Fabric Management

Hyper-V Bare Metal Provisioning

Multi Hypervisor Management

Network Management

Storage Management

Update Management

Dynamic Optimization

Power Management

Cluster Management

Cloud

Cloud Management

Application Owner Usage

Capacity and Capability

Delegation and Quota

Services

Service Management

Service Templates

Application Deployment

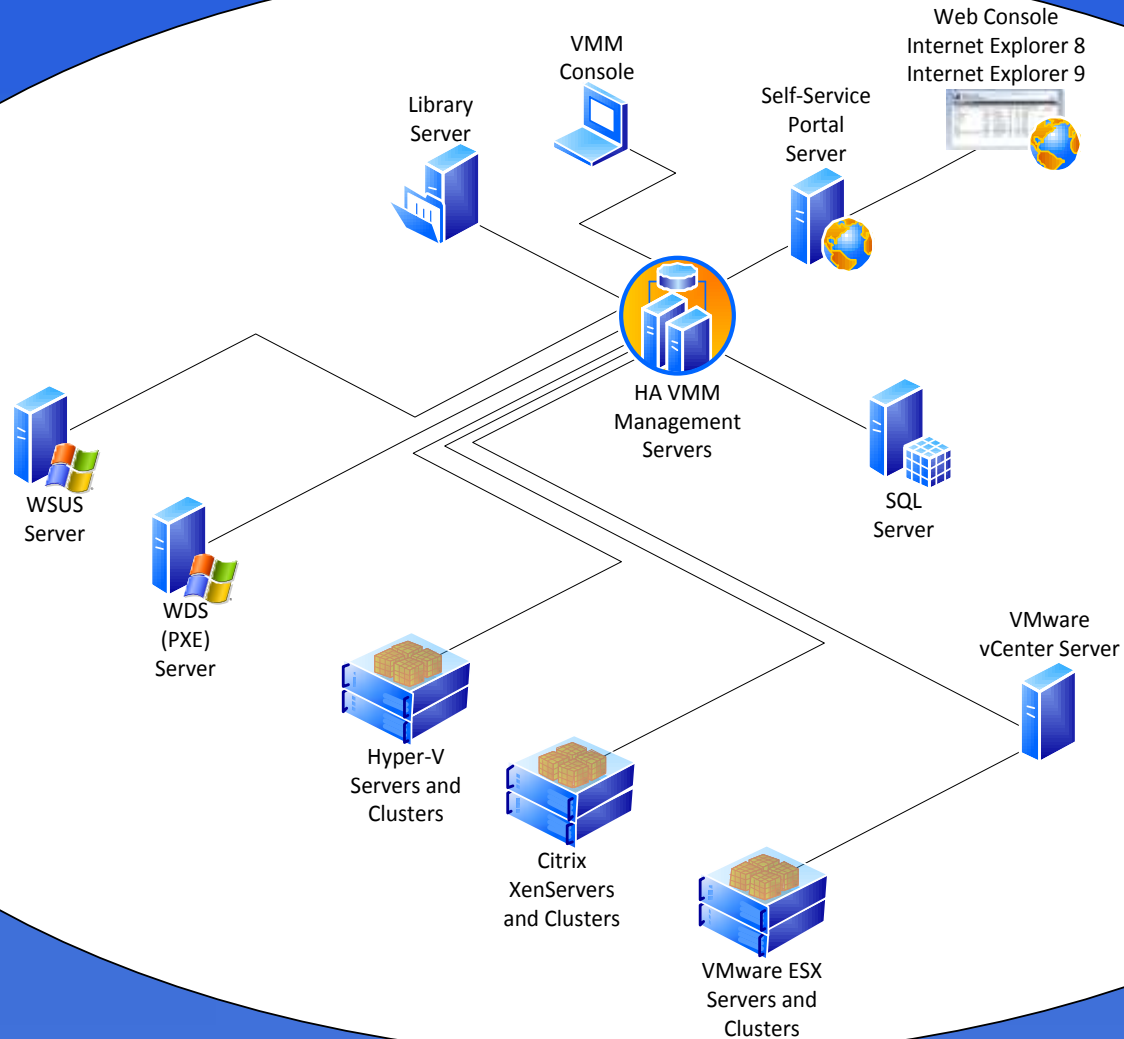
Custom Command Execution

Image Based Servicing

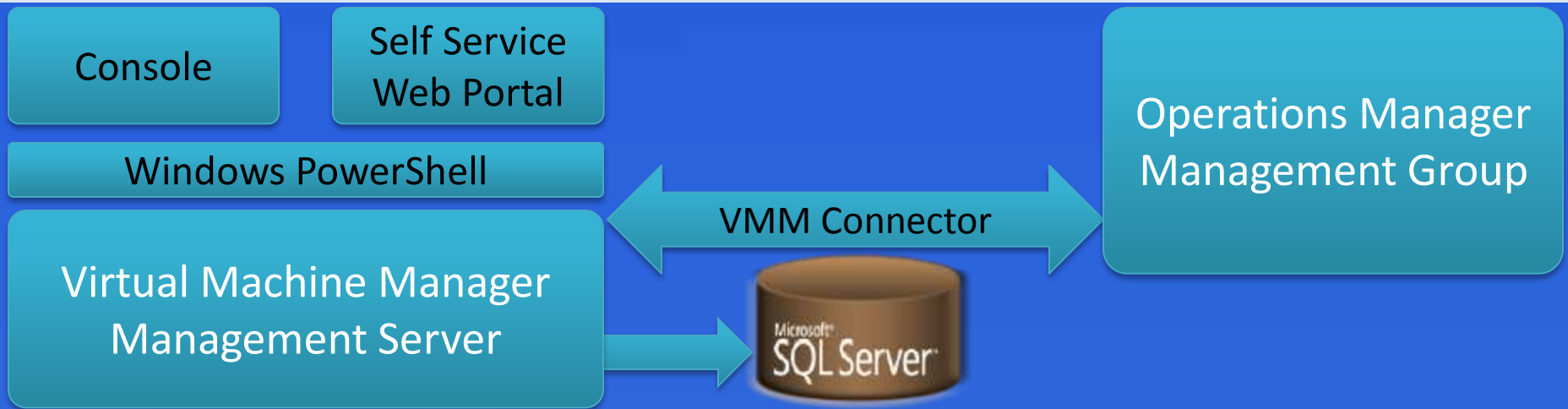
Deployment: VMM Versies

Versie	Belangrijkste features
2007	Virtual Server 2005 R2 SP1
2008	+ Hyper-V R1, ESX Support, Cluster, PowerShell, PRO
2008 R2	+ Hyper-V R2, Cluster Shared Volumes, Live Migration, + 3rd party filesystems (Sanbolic, Veritas Storage Foundation)
2008 R2 SP1	+ Hyper-V R2 SP1 met Dynamic Memory/Remote FX
2012	- Virtual Server + XenServer, vSphere 4.1, HA VMM, Storage & Network Integration, Dynamic Optimization, Power Optimization, Private Clouds, Server App-V, Services, Self-Service

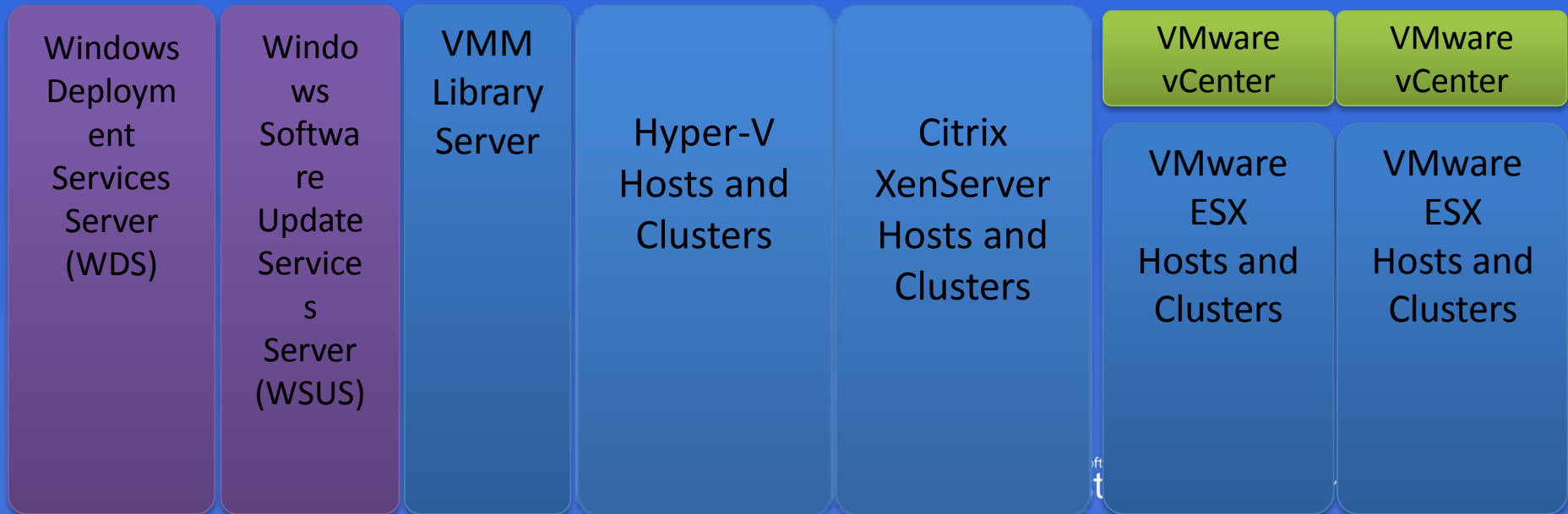
VMM 2012 Topologie



VMM 2012 Architectuur



Management Interfaces (Virtualization Abstraction, Storage, Networking)



Deployment: Setup & Upgrade

❖ Ondersteunde Versies

❖ VMM Server

- ❖ Windows Server 2008 R2 (Standard, Enterprise, DC)
- ❖ Windows Server 2008 R2 SP1 (Standard, Enterprise, DC)

❖ HA VMM Server

- ❖ Windows Server 2008 R2 (Enterprise, DC)
- ❖ Windows Server 2008 R2 SP1 (Enterprise, DC)

❖ Database Server

- ❖ SQL Server 2008 SP2
- ❖ SQL Server 2008 R2

Geen SQL Server 2005

Geen SQL Server Express 2005 of 2008

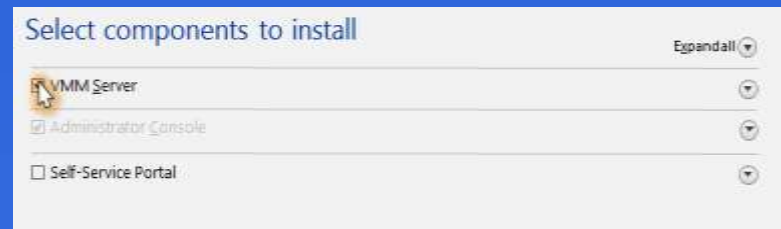
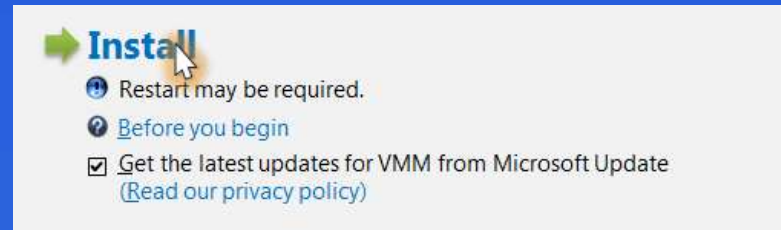
Deployment: Setup & Upgrade

❖ Setup verbeteringen

- ❖ Update verder vereenvoudigd
- ❖ Seriële installatie/deïnstallatie van componenten
 - ❖ VMM Server, VMM Console, Self-Service Portal
- ❖ Geen key nodig om te installeren
 - ❖ Evaluatie versie zonder key
 - ❖ Upgrade naar Licensed build
 - ❖ Op HA VMM cluster eenmalig

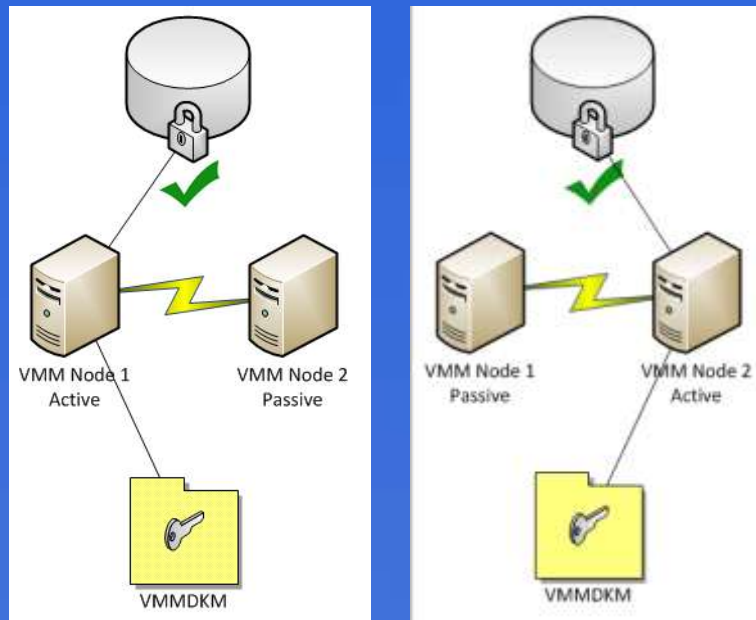
❖ Upgrade pad

- ❖ Minimaal vanaf SCVMM 2008 R2 SP1 RTM (n-1)
 - ❖ In-Place Upgrade Standalone VMM Server
 - ❖ Upgrade rechtstreeks naar HA VMM Server
- ❖ Vooraf installeren: Windows AIK 2.0, .Net 3.5.1



Deployment: HA VMM Server

- ❖ Beschermd tegen fouten in OS en VMM
- ❖ Admin console met reconnect logica
- ❖ Denk ook aan HA SQL en HA File Server voor VMM Library
- ❖ Vereiste voor Distributed Key Management (DKM) groep in AD
 - ❖ encryption keys voor encrypted data in VMM database





DEMO HA VMM SERVER 2012

Fabric

❖ Deployment

- ❖ VMM versies, topologie en architectuur
- ❖ Setup & Upgrade
- ❖ High Available VMM Server

❖ Fabric

- ❖ Multi Hypervisor management
- ❖ Storage Integratie

Fabric: Multi Hypervisor Management

❖ Hyper-V

❖ Hosts en Clusters in

- ❖ trusted domains (ook disjointed)
- ❖ untrusted domains
- ❖ perimeter networks

❖ Physical computers zonder operating system

❖ VMware

❖ VMM integreert direct met vCenter Server 4.1

- ❖ Niet langer import/sync met VMware tree structuur
- ❖ Selectief toevoegen ESX (3.5 en 4.1) hosts aan VMM host groep



Fabric: Multi Hypervisor Management



❖ XenServer

- ❖ XenServer version 5.6 Feature Pack 1
- ❖ Directly managed (zonder Citrix XenCenter)
- ❖ Management van XenServer hosts en XenServer pools
 - ❖ Discover, add, remove hosts & clusters
 - ❖ Create, manage, store, place, deploy VMs & Services

❖ Algemeen

- ❖ Alle hypervisors te managen met zelfde command shell
- ❖ Alle VM operaties gelden voor alle hypervisors
- ❖ Alle Service operaties gelden voor alle hypervisors

Fabric: Storage Integratie

❖ Uitgangspunten

- ❖ Gebaseerd op standaarden
 - ❖ SMI-S (SNIA)
- ❖ Diepgaande storage integratie in VMM 2012
- ❖ Compatibiliteit met oudere technieken (VDS)
- ❖ Volledig met Powershell te beheren
- ❖ Storage arrays supported in beta
 - ❖ EMC Symmetrix en CLARiiON CX
 - ❖ HP EVA
 - ❖ NetApp FAS

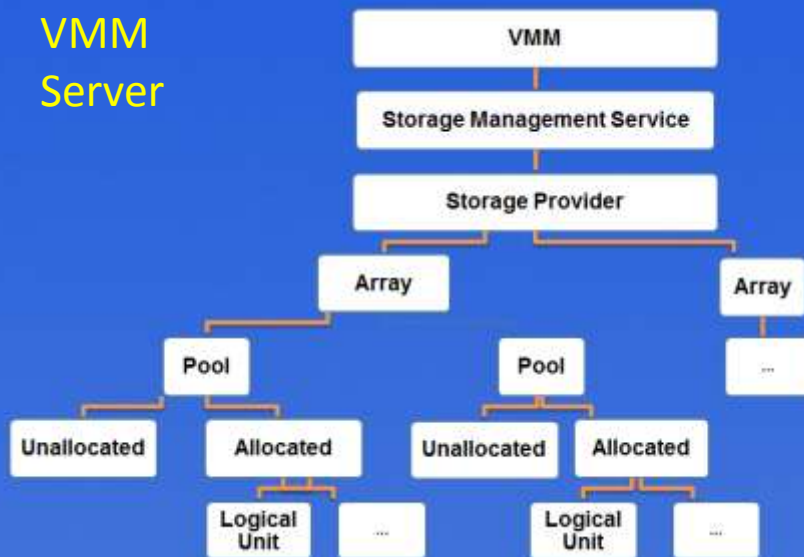


Fabric: Storage Integratie

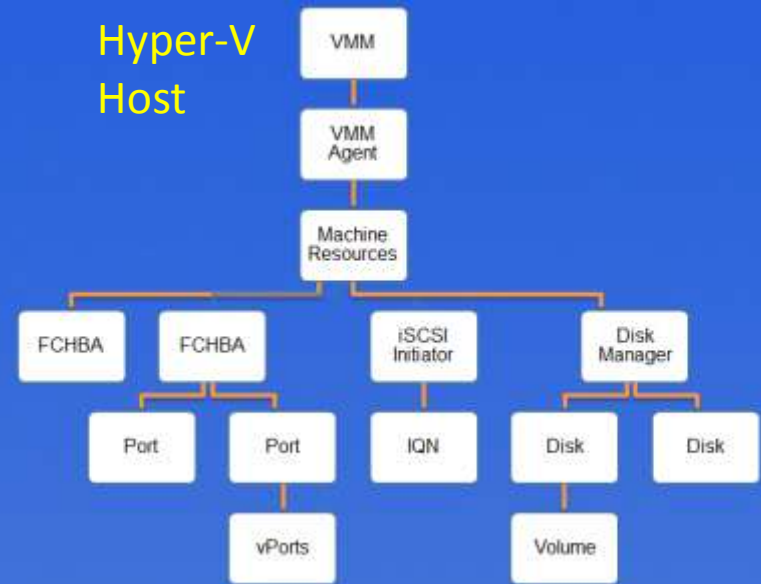
❖ Functionaliteit

- ❖ *Discovery* van storage arrays en storage pools
- ❖ Discovery en configuratie van Logical Units (LUNs)
- ❖ *Classification* van storage
- ❖ *Allocation* van storage aan Host Groups en Clouds
- ❖ *Assignment* van LUNs aan Hyper-V hosts en clusters
- ❖ End-to-End monitoring van de VHD tot en met de LUN
- ❖ SAN Copy Capable VHDs

VMM Server

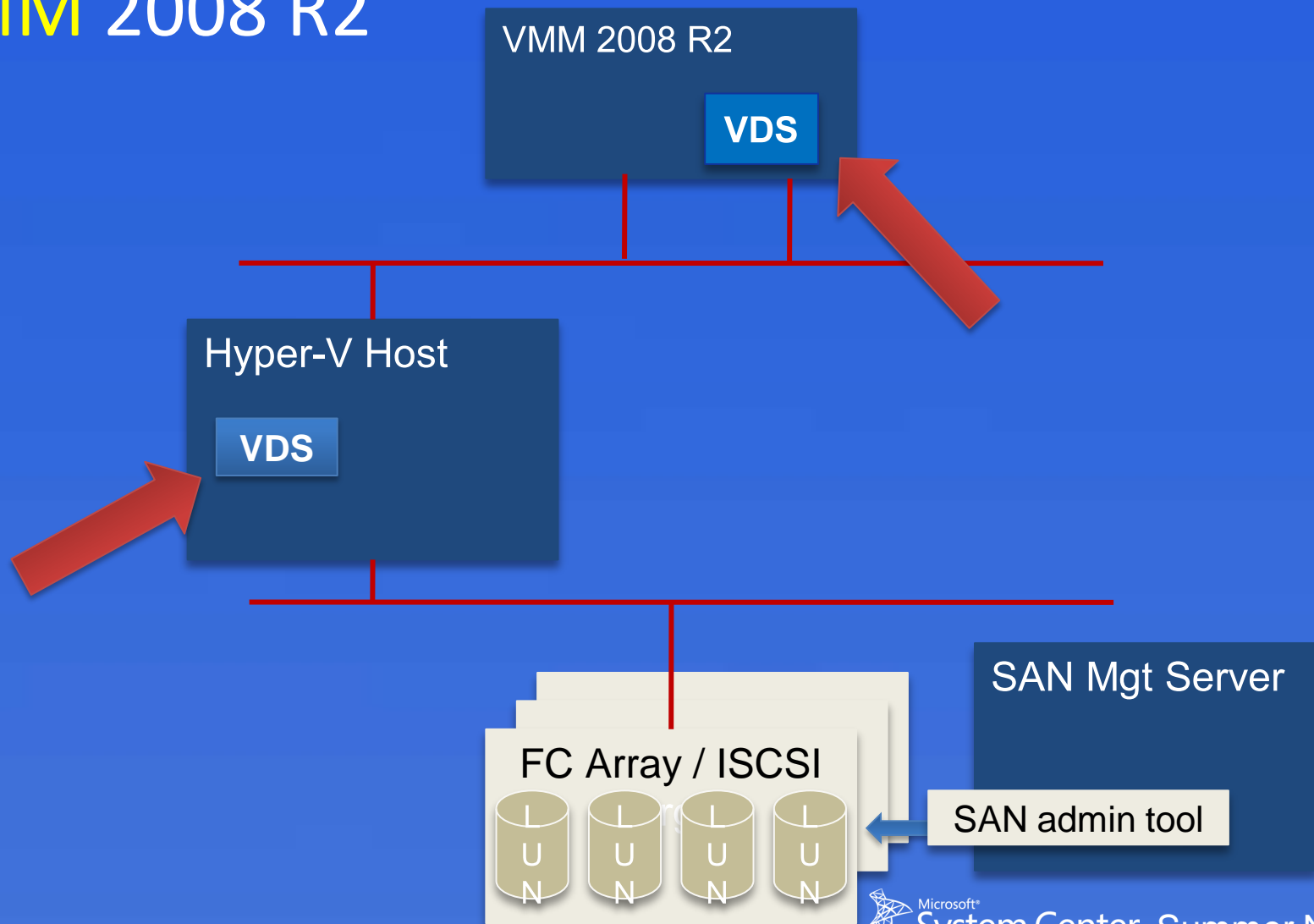


Hyper-V Host



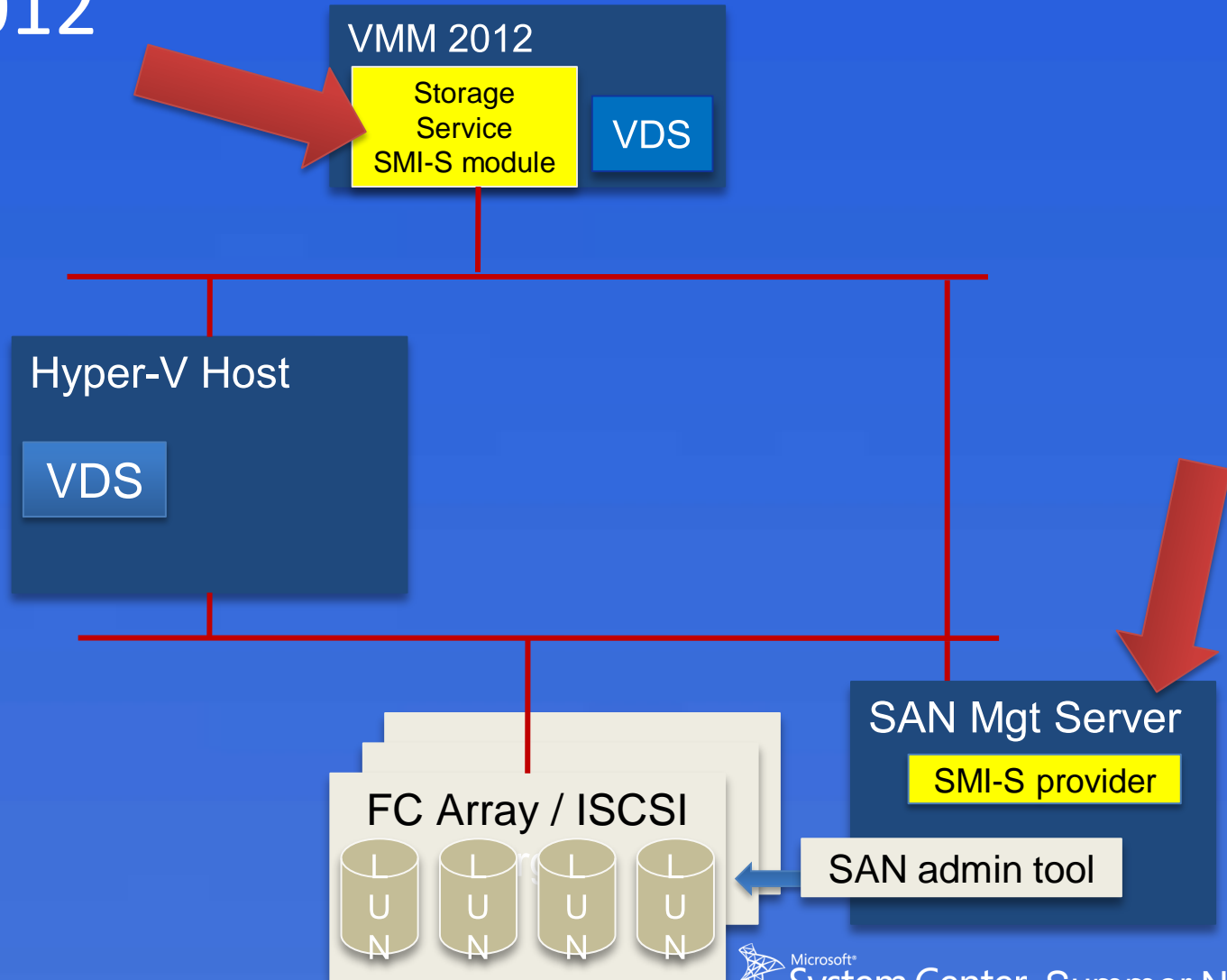
Fabric: Storage Integratie

VMM 2008 R2

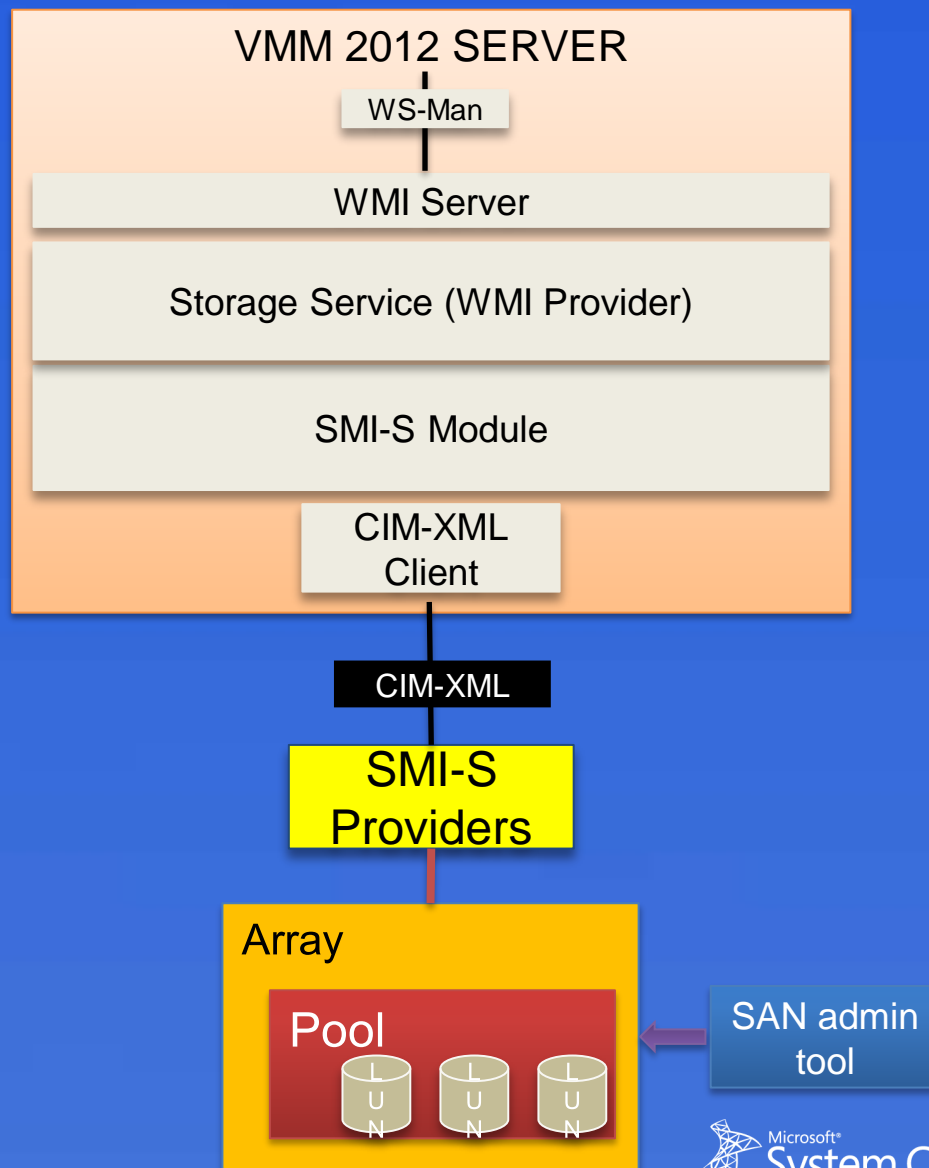


Fabric: Storage Integratie

VMM 2012



Fabric: Storage Integratie



```
[6]> #Virtual disk drive to virtual hard disk
[7]> ($vhd = $vdd[0].VirtualHardDisk) | fl Location, HostVolume, VMHost
```

```
Location      : D:\VMs\MySANVM01\LUN1\W2K8R2SP1X64.VHD
HostVolume    : D:\
VMHost        : VMMLAB1823N2.dcmanger.lab
```

```
[8]> #Virtual hard disk to Host Volume
```

```
[9]> ($hostvolume = $vm.VMHost.Disks[2].DiskVolumes[0]) | fl MountPoints, HostDisk, VMHost
```

```
MountPoints   : {D:\VMs\MySANVM01\LUN1}
HostDisk      : \\.\PHYSICALDRIVE2
VMHost        : VMMLAB1823N2.dcmanger.lab
```

```
[10]> #Host Volume to Host Disk
```

```
[11]> ($hostdisk = $HostVolume.StorageDisk) | fl DeviceID, UniqueID, SMLunId, StorageLogicalUnit, VMHost
```

```
DeviceID      : \\.\PHYSICALDRIVE2
UniqueID      : 3514919463
SMLunId       : NETAPP LUN P3aKHJe-ct5h
StorageLogicalUnit : /vol/vol14/LU1_MySANVM01
VMHost        : VMMLAB1823N2.dcmanger.lab
```

```
[12]> #Host Disk to Storage Logical Unit
```

```
[13]> ($storagelogicalunit = $HostDisk.StorageLogicalUnit) | fl Name, CopyType, SourceLogicalUnit, StoragePool
```

```
Name          : /vol/vol14/LU1_MySANVM01
CopyType      :
SourceLogicalUnit :
StoragePool   : aggr0
```

```
[14]> #Get FC info
```

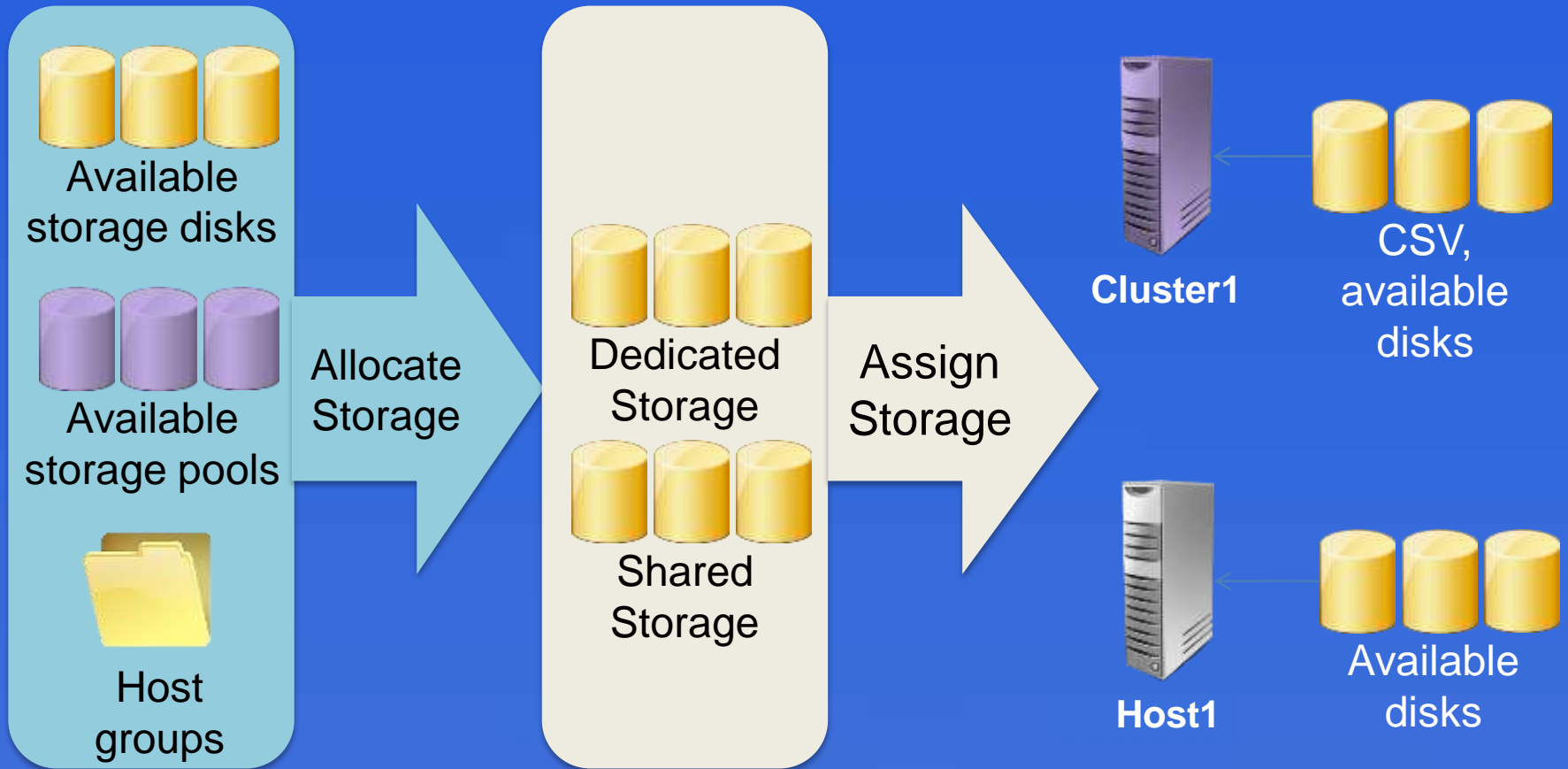
```
[15]> #($FCHBA = $vm.VMHost.FibreChannelHbas) | fl NodeWWN, DiscoveredFibrePorts, Manufacturer
```

```
[16]> #Storage logical unit to Storage Pool
```

```
[17]> ($storagepool = $StorageLogicalUnit.StoragePool) | fl Name, RemainingManagedSpace, TotalManagedSpace, StorageArray
```

```
Name          : aggr0
RemainingManagedSpace : 467968933888
TotalManagedSpace   : 972419788800
StorageArray        : FAS2040-SCVMM
```

Storage Allocation & Storage Assignment





DEMO FABRIC STORAGE INTEGRATION

Resumerend

- ❖ VMM 2012 is een belangrijk System Center product
- ❖ Hét platform voor de Microsoft Private Cloud
- ❖ Eenvoudige setup & upgrade
- ❖ Diepe integratie met storage
- ❖ Gereed voor *de Big Three*
- ❖ Grote aandacht voor high availability
- ❖ ... en dit was nog maar een heel klein deel

- ❖ *“Release candidate is production ready”*
- ❖ Start een PoC

Ga er NU mee beginnen!

THE END



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